

**WE CLAIM**

1. A method for evaluating connections in an agile network comprising:
  - (a) for a switching node of said agile network, selecting a plurality of paths available between said switching node and all remaining nodes of said agile network;
  - (b) for an available path, selecting a plurality of adequate wavelengths according to a wavelength performance parameter;
  - (c) for each adequate wavelength, establishing said test connection along said path; and
  - (d) at preset intervals, repeating step (c) for all adequate wavelengths, repeating steps (b) and (c) for all available paths, and repeating steps (a), (b) and (c) for all nodes of said agile network.
2. A method as claimed in claim 2, wherein said adequate wavelengths are wavelengths that can reach a respective remaining node.
3. A method as claimed in claim 1, performed with live traffic over said network.
4. A method as claimed in claim 2, wherein said adequate wavelengths are wavelengths that can reach a respective remaining node and are not used for live traffic.
5. A method as claimed in claim 1, wherein said step (c) comprises providing an alarm whenever said test connection cannot be established along said path.

6. A method as claimed in claim 5, wherein said alarm identifies the location of a fault at one of an add structure of said switching node and a drop structure of said other node.

7. A method as claimed in claim 5, wherein said alarm identifies the location of a fault at a switch passed through by said test connection.

8. A method as claimed in claim 1, wherein said step (c) comprises measuring a performance parameter of said path and storing said performance parameter in a measurement database, whenever said test connection is established along said available path.

9. A method as claimed in claim 8, further comprising calibrating a Q calculator based on said measured performance parameter.

10. A method as claimed in claim 8, further comprising adjusting a tunable parameter of an optical device of said available path based on said performance parameter.

11. A method as claimed in claim 8, further comprising setting a target parameter for one or more optical devices of said available path based on said performance parameter.

12. A method as claimed in claim 8, further comprising provisioning an optical device of said path which has a fixed parameter selected based on said performance parameter.

13. A network and element management system for a wavelength switched optical network comprising:

at a switching node, a wavelength exerciser for detecting a test path between said switching node and another switching node; and

a call management module for setting up a connection along said test path.

14. A system as claimed in claim 13, further comprising a Q calculator for determining the Q factor of said test connection.

15. A system as claimed in claim 14, further comprising a database for storing the Q factor of said test connection.

16. A system as claimed in claim 14, further comprising a database for storing a set of performance parameters of said test connection, collected by a plurality of optical devices in said test path.

17. A system as claimed in claim 13, wherein said call manager sets-up a live connection along a selected path based on a connection request, and sets – up said test connection as a background task on request from said wavelength exerciser.

18. A wavelength exerciser for an agile network, comprising:  
a path selector for selecting a test path between a source node and a destination node;

a wavelength assignment module for assigning successively a plurality of wavelengths to said test path for establishing a test connection along said test path;

a fault finder for detecting a fault whenever said test connection fails; and  
a test connection controller for controlling operation of said path selector, said wavelength assignment module and said fault finder.